

3GPP TSG RAN Meeting #91-e

Electronic Meeting, March 16 - 26, 2021

Agenda: 9.7.27

# Way Forward on support of single Rx and 40MHz bandwidth for RedCap

Samsung, Apple, Facebook, Google,  
Guangdong Genius, OPPO, Qualcomm, TCL,  
vivo, Xiaomi, ZTE, DISH Network, Reliance Jio,  
KT Corp., SK Telecom, LG Uplus, Verizon

- ◇ The following objectives are to be discussed in RAN#91e in Redcap WID (RP-202933)
  - ◆ Reduced maximum UE bandwidth:
    - Maximum bandwidth of an FR1 RedCap UE during and after initial access of 20 MHz is supported. The possibility of, and any associated conditions for, optional support of a wider bandwidth up to 40MHz after initial access for this case will be further discussed at RAN#91e.
  - ◆ Reduced minimum number of Rx branches:
    - For frequency bands where a legacy NR UE (other than 2-Rx vehicular UE) is required to be equipped with a minimum of 4 Rx antenna ports, the minimum number of Rx branches supported by specification for a RedCap UE will be decided at RAN#91e; hence no specific work for these frequency bands will be done before RAN#91e.
  - ◆ Specify higher layer support of enhancements listed above [RAN2, RAN1]. Details are to be refined at RAN#91e taking the outcome of the RedCap SI into account, and work on this objective shall start after RAN#91e:
    - Specify definition of RedCap UE type(s) including set(s) of L1 capabilities for RedCap UE identification and for constraining the use of those RedCap L1 capabilities only for RedCap UEs, and preventing RedCap UEs from using capabilities not intended for RedCap UEs including at least carrier aggregation, dual connectivity and wider bandwidths.
    - Specify functionality that will enable RedCap UEs to be explicitly identifiable to networks and allow operators to restrict their access if desired.
    - Specify necessary updates of UE capabilities (38.306) and RRC parameters (38.331).

# Proposed way forward

- ◇ For frequency bands where a legacy NR UE is required to be equipped with a minimum of 4 Rx antenna ports, the minimum number of Rx branches supported by specification for a RedCap UE is 1. The specification also supports 2 Rx branches for a RedCap UE in these bands.
  - ◆ The number of Rx branches can be obtained by the network
- ◇ Maximum bandwidth of an FR1 RedCap UE during and after initial access of 20 MHz is supported. 40MHz channel bandwidth after initial access is optionally supported.
  - ◆ 40 MHz channel bandwidth is supported only in case of single layer transmission.
- ◇ No coverage recovery specific to RedCap will be defined in Rel-17 Redcap WI. Coverage enhancement and 'repetition' techniques specified in other Rel-17 WIs will be made commonly applicable to both non-RedCap UEs and RedCap UEs.